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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,550	10/27/2003	Ronald S. Cok	87182THC	9646

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EXAMINER	
DONG, DALEI	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/694,550	COK, RONALD S.	
	Examiner	Art Unit	
	Dalei Dong	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Response filed on June 5, 2006, has been entered and acknowledged by the Examiner.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4, 7 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,967,437 to Samuel in view of U.S. Patent No. 6,211,613 to May.

Regarding claim 1, Samuel discloses in Figures 2 and 3, an organic Light emitting display, comprising: a substrate (silica substrate), a plurality of OLEDS (see Figure 3) formed on the substrate (1), the OLEDS emitting polarized light wherein the OLEDS comprise: a layer (photoresist) defining a periodic grating structure (see column 9, lines 25-28), a first electrode layer (Au layer and PEDOT layer) conforming to the grating structure, an OLED material layer (MEH-PPV, wherein suitable small organic molecules can be used, see column 1, lines 60-63) formed over the first electrode layer (Au layer and PEDOT layer) and conforming to the grating structure, and a second electrode layer (calcium electrode and aluminum electrode) formed over the OLED material layer and conforming to the grating structure, wherein the first (Au layer and PEDOT layer) and/or

second electrode (calcium electrode and aluminum electrode) are metallic layers, whereby the periodic grating structure induces surface plasmon cross coupling in the metallic electrode layer (see column 2, lines 55-62) to emit polarized light.

Samuel discloses the use of polarizer in Figure 7, however, is silent regarding the OLED further comprising a polarizer, wherein the polarizer is oriented such that the emitted polarized light passes through the polarizer without being substantially absorbed.

However, in the same field of endeavor, May discloses an EL device comprising a circular polarizer oriented such that the emitted polarized light passes through the polarizer without being substantially absorbed, and teaches the suitability of said polarizer for improving the contrast of the display, by absorbing light from the environment (see at least Col. 1, lines 55-58).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a polarizer of May for the organic light emitting diode of Samuel, in order to increase the contrast of the image.

Regarding claim 2, May teaches the polarizer being a circular polarizer (see column 1, lines 55-58), and the motivation to combine is the same as above.

Regarding claims 3, May teaches in Figures 1 and 2, the display being a top emitting display having an encapsulating cover, and the polarizer is affixed to the encapsulating cover, and the motivation to combine is the same as above.

Regarding to claim 4, Samuel teaches in Figure 2, the display being a bottom emitter and the May reference the polarizer being affixed to the substrate, and the motivation to combine is the same as above.

Regarding to claim 7, Samuel discloses the OLED wherein the metallic layers (calcium electrode and the aluminum electrode layers) are opaque.

Referring to claims 9 and 10, Samuel-May discloses the claimed invention except for the limitation of the display being an active matrix display, Samuel discloses a passive matrix display.

However, the Examiner notes that regardless of whether a passive matrix or an active matrix type is used, the EL device has a capacitor structure with an EL layer sandwiched by a cathode and an anode, and the EL display operates under the principle of causing the EL layer to luminance by the flow of electric current. Thus, it would have been obvious to one or ordinary skill in the art at the time the invention was made to use either a passive or active matrix display, since both method of driving the display operate under the same principles. Further, it is well known in the art that active matrix type provide a high-resolution display.

Regarding to claim 11, Samuel discloses in Figure 2, the first electrode layer is non-metallic (PEDOT layer) and further comprising a metallic layer formed on the first electrode layer (Au layer) and conforming to the grating structure.

Referring to claim 12, Samuel discloses the first electrode layer (Au layer) being ITO (see column 9, lines 39-42).

In regards to claim 13, the claim is rejected over the reasons stated in the rejection of claim 1.

4. Claims 5, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,967,437 to Samuel in view of U.S. Patent No. 6,211,613 to May in further view of U.S. Patent No. 6,815,886 to Kawase.

Regarding to claim 5, Samuel in view of May discloses an organic Light emitting display, comprising: a substrate (silica substrate), a plurality of OLEDS (see Figure 3) formed on the substrate (1), the OLEDS emitting polarized light wherein the OLEDS comprise: a layer (photoresist) defining a periodic grating structure (see column 9, lines 25-28), a first electrode layer (Au layer) conforming to the grating structure, an OLED material layer (MEH-PPV, wherein suitable small organic molecules can be used, see column 1, lines 60-63) formed over the first electrode layer (Au layer) and conforming to the grating structure, and a second electrode layer (calcium electrode and aluminum electrode) formed over the OLED material layer and conforming to the grating structure, wherein the first (Au layer) and/or second electrode (calcium electrode and aluminum electrode) are metallic layers, whereby the periodic grating structure induces surface plasmon cross coupling in the metallic electrode layer (see column 2, lines 55-62) to emit polarized light and the OLED further comprising a polarizer, wherein the polarizer is

oriented such that the emitted polarized light passes through the polarizer without being substantially absorbed.

However, Samuel and May does not disclose the OLED material layer including portions for emitting different colors and the period of the grating structure being different for the different colors.

Kawase teaches in Figures 3 and 4, an organic light emitting diode display comprising: portions for emitting different colors and the period of the grating structure being different for the different colors (see Col. 10, lines 34-38) for the purpose of enhancing the respective color wavelength and providing multi-color outputs.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the polarizer of May and the multi-color output of Kawase for the organic light emitting diode display of Samuel in order to enhance the respective color wavelength and provide multi-color outputs.

Regarding to claim 6, Kawase teaches the OLD wherein the layer defining a grating structure is a light absorbing layer (see column 8, lines 11-19), and the motivation to combine is the same as above.

Referring to claim 8, Kawase discloses the grating structure being a two-dimensional grating (see Col. 6, lines 56-57) and the motivation to combine is the same as above.

5. Claims 14-17 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,967,437 to Samuel in view of U.S. Patent No. 6,211,613 to May and further in view of U.S. Patent No. 5,855,994 to Biebuyck.

Regarding to claim 14, Samuel in view of May discloses the claimed invention except for the limitation of a diffuser to mitigate the effect of color aberrations. However, in the same field of endeavor, Biebuyck discloses an EL device comprising a diffuser (see column 7, lines 18-35), in order to provide an organic light-emitting device having a light path for efficient emission.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a diffuser of Biebuyck and the polarizer of May for the display device of Samuel in order to provide an organic light-emitting device having a light path for efficient emission.

Regarding to claim 15, Biebuyck teaches in Figure 1, the diffuser is applied to the exterior of the device and the motivation to combine is the same as in claim 14

Regarding to claim 16, Biebuyck teaches the diffuser is incorporated into the top encapsulate layer, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have incorporate the diffuser into the substrate for a bottom emitting display in order to provide an organic light-emitting device having a light path for efficient emission.

Regarding to claim 17, Biebuyck teaches in Figure 1, the display is a top emitting display having an encapsulating cover, and the diffuser is incorporated into the encapsulating cover.

Response to Arguments

6. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

In response to Applicant's argument that the Samuel reference does not teach that the period grating structure is configured to induce surface plasmon cross coupling in the metallic electrode layer; the Examiner respectfully disagree. The Samuel reference specifically and clearly discloses the LED structure emit their energy into the available mode of surface plasmon polariton modes associated with the metal contacts (see column 2, lines 55-62). The Examiner interprets that when the LED structure is capable of operating in the mode of surface plasmon polariton, every component of the LED structure is configured to induce surface plasmon in order to operate in that specific mode. Further, the Samuel reference clearly discloses the plasmon cross coupling is merely a mode of operation for the LED structure. Furthermore, in the prior response Applicant itself admitted that the "surface plasmon cross-coupling is simply a different mode of operation than the optical coupling techniques of the Kawase reference." Thus, the Examiner asserts that the surface plasmon cross-coupling is simple a mode of operation and the Samuel reference teaches the claimed invention.

Also, in response to Applicant's argument that there is not teaching in the May reference of emitted polarized light, the Examiner respectfully disagree. The May reference teaches the use of circular polarizer (14) disposed in front of the viewing surface and the emitted light is passed through the polarizer. Thus, the Examiner interprets that the light passed through the circular polarizer is polarized light. Thus, the Examiner asserts that the May reference teaches the emitted polarized light.

Furthermore, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Samuel reference teaches an LED with improved efficiency and the May reference also teaches ways to improve the efficiency and contrast of a display. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a polarizer of May for the organic light emitting diode of Samuel, in order to increase the contrast of the image.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (571)272-2370. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571)272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D.D.
October 4, 2006

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